

WASHINGTON UTILITIES AND TRANSPORTATION COMMISSION

**Washington State Department of
 Transportation**

 Petitioner,

vs.

**Central Puget Sound Regional
 Transportation Authority and City of
 Lakewood**

 Respondent

) DOCKET NO. TR-

)
)
) PETITION TO MODIFY A
) HIGHWAY-RAIL GRADE
) CROSSING
) **108th Street SW**

)
)
) USDOT CROSSING # **085404F**
) UTC CROSSING # **1J 9.09**

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 The Petitioner asks the Washington Utilities and Transportation Commission to approve modification of a highway-rail grade crossing.

Section 1 – Petitioner’s Information

Washington State Department of Transportation

 Petitioner

310 North Maple Park Ave SE

 Street Address

Olympia, WA 98504

 City, State and Zip Code

PO Box 47387, Olympia, WA 98504-7387

 Mailing Address, if different than the street address

Kevin Jeffers

 Contact Person Name

360-705-7982; JefferK@wsdot.wa.gov

 Contact Phone Number and E-mail Address

Section 2 – Respondent's Information

Central Puget Sound Regional Transportation Authority ("Sound Transit")

Respondent

401 South Jackson Street

Street Address

Seattle, WA 98104-2826

City, State and Zip Code

Mailing Address, if different than the street address

Jodi Mitchell

Contact Person Name

206-398-5080; Jodi.Mitchell@SoundTransit.org

Contact Phone Number and E-mail Address

Section 3 – Current Crossing Information

1. Railroad company(ies) _____
• Tracks owned by: Sound Transit
• Operating railroad: Tacoma Rail, BNSF
2. Type of railroad at crossing Common Carrier Logging Industrial
 Passenger Excursion
3. Type of tracks at crossing Main Line, number of tracks 1
 Siding or Spur, number of tracks _____
4. Average daily train traffic, freight 2 per day (trains typically operate 4-5 days/week, max.)
Authorized freight train speed 10 mph Operated freight train speed 10 mph
5. Average daily train traffic, passenger 0
Authorized passenger train speed N/A Operated passenger train speed N/A
6. Describe current crossing configuration including type of train detection, active warning devices, preemption, etc.:
There is currently a two-track crossing with cantilever-mounted flashing lights and gates.

The existing detection circuitry is either motion sensors or constant warning time.

There are existing medians on both sides of the crossing.

Section 4 – Expected Crossing Characteristics After Modification

1. Type of railroad operations at crossing Common Carrier Logging Industrial

Passenger Excursion

2. Type of tracks at crossing Main Line, number of tracks 2

Siding or Spur, number of tracks _____

3. Average daily train traffic, freight 2

 Authorized freight train speed 40 mph Operated freight train speed 40 mph

4. Average daily train traffic, passenger 36 (includes low-speed trains to/from layover)

 Authorized passenger train speed 79 mph Operated passenger train speed 79 mph

5. Will the modified crossing eliminate the need for one or more existing crossings?

 Yes No X

6. If so, state the distance and direction from the modified crossing.

7. Does the petitioner propose to close any existing crossings and if yes, which crossings?

 Yes No X

Section 5 – Proposed Temporary Crossing

1. Will a temporary crossing be installed? Yes ____ No X

2. If so, describe the purpose of the crossing and the estimated time it will be needed

3. Will the petitioner remove the crossing at completion of the activity requiring the temporary crossing? Yes ____ No ____ N/A

Approximate date of removal _____

Section 6 – Current Highway Traffic Information

1. Name of roadway/highway 108th Street SW

2. Roadway classification Secondary Arterial
 City of Lakewood

3. Road authority _____

4. Average annual daily traffic (AADT) 11,440 (in year 2006)

5. Number of lanes 1 WB lane, 1 EB lane at crossing. 1 WB left turn pocket at Lakeview Ave intersection

6. Roadway speed 35mph

7. Is the crossing part of an established truck route? Yes X No _____

8. If so, trucks are what percent of total daily traffic? 2.4% (PM peak)

9. Is the crossing part of an established school bus route? Yes X No _____

10. If so, how many school buses travel over the crossing each day? 47

11. Describe any changes to the information in 1 through 7, above, expected within ten years:
 AADT estimated to grow to 15,680 (in year 2020).

Section 7 – Alternatives to the Proposed Modifications

1. Does a safer location for a crossing exist within a reasonable distance of the current or proposed location? Yes _____ No X

2. If a safer location exists, explain why the crossing should not be located at that site.

3. Are there any hillsides, embankments, buildings, trees, railroad loading platforms or other barriers in the vicinity which may obstruct a motorist's view of the crossing?

Yes X No _____

4. If a barrier exists, describe:

- ◆ Whether petitioner can relocate the crossing to avoid the obstruction and if not, why not.
- ◆ How the barrier can be removed.
- ◆ How the petitioner or another party can mitigate the hazard caused by the barrier.

Views are obstructed a buildings in the northwest and northeast quadrants and, in the southeast quadrant, a raised railroad embankment for a spur line obstructs views of the tracks for westbound motorists.

It is infeasible to relocate the buildings, and the existing street grid cannot accommodate a crossing at another location. The barriers to sight lines will be addressed with active warning devices (relocated cantilever-mounted flashing lights and crossing gates), as well as revised advance pre-emption timing at the intersection of 108th Street SW and Lakeview Ave SW. Medians will be reconstructed to accommodate the revised track location.

5. Is it feasible to construct an over-crossing or under-crossing at the proposed location as an alternative to an at-grade crossing?

Yes _____ No X

6. If an over-crossing or under-crossing is not feasible, explain why.

The existing site is in a largely residential area. Combined with nearby roadway intersections, the grades required for the roadway approaches would not meet AASHTO guidelines for vertical curvature unless the street grid in this area were significantly reconfigured.

7. Does the railway line, at any point in the vicinity of the modified crossing, pass over a fill area or trestle or through a cut where it is feasible to construct an over-crossing or an under-crossing, even though it may be necessary to relocate a portion of the roadway to reach that point?

Yes No

8. If such a location exists, state:

- ◆ The distance and direction from the proposed crossing.
- ◆ The approximate cost of construction.
- ◆ Any reasons that exist to prevent locating the crossing at this site.

9. Is there an existing public or private crossing in the vicinity of the proposed modified crossing?

Yes No

10. If a crossing exists, state:

- ◆ The distance and direction from the proposed crossing.
- ◆ Whether it is feasible to divert traffic from the proposed to the existing crossing.

Section 8 – Sight Distance

1. Complete the following table, describing the sight distance for motorists when approaching the tracks from either direction after modification. **“Number of feet from proposed crossing” is measured from the centerline of track along the centerline of the lane. Sight distance is measured from the edge of traveled way (edge of fog line or curb line) along the CL of track at the crossing. NOTE - for “Left” sight distances, the edge of traveled way is on the opposite side of the roadway.**

a. Approaching the crossing from WEST, the current approach provides an unobstructed view as follows: (North, South, East, West)

| Direction of sight (left or right) | Number of feet from proposed crossing | Provides an unobstructed view for how many feet |
|------------------------------------|---------------------------------------|---|
| Right | 300 | 675 |
| Right | 200 | 800 |
| Right | 100 | 645 |
| Right | 50 | 515 |
| Right | 25 | 485 |
| Left | 300 | 510 |
| Left | 200 | 680 |
| Left | 100 | 1110 |
| Left | 50 | 1025 |
| Left | 25 | 940 |

b. Approaching the crossing from EAST, the current approach provides an unobstructed view as follows: (Opposite direction-North, South, East, West)

| Direction of sight (left or right) | Number of feet from proposed crossing | Provides an unobstructed view for how many feet |
|------------------------------------|---------------------------------------|---|
| Right | 300 | 10 |
| Right | 200 | 10 |
| Right | 100 | 600 |
| Right | 50 | 1000 |
| Right | 25 | 1000 |
| Left | 300 | 15 |
| Left | 200 | 20 |
| Left | 100 | 725 |
| Left | 50 | 725 |
| Left | 25 | 725 |

2. Will the modified crossing provide a level approach measuring 25 feet from the center of the railway on both approaches to the crossing?

Yes No X

3. If not, state in feet the length of level grade from the center of the railway on both approaches to the crossing. **From the west, the grade slopes down to the crossing at approximately 0.70% for a distance of 75'. From the east, the roadway slopes up to the crossing at between 0.83% and 0.30%.**

4. Will the modified crossing provide an approach grade of not more than five percent prior to the level grade?

Yes X No

3. If not, state the percentage of grade prior to the level grade and explain why the grade exceeds five percent.

Section 9 – Illustration of Modified Crossing Configuration

Attach a detailed diagram, drawing, map or other illustration showing the following:

- ◆ The vicinity of the modified crossing.
- ◆ Layout of the railway and highway 500 feet adjacent to the crossing in all directions.
- ◆ Percent of grade.
- ◆ Obstructions of view as described in Section 7 or identified in Section 8.
- ◆ Traffic control layout showing the location of the existing and proposed signage.

Existing features (buildings, trees, etc) that are obstructions are shown on the accompanying plan in “screened” or “grayscale” lines.

Section 10 – Proposed Warning Signals or Devices

1. Explain in detail the number and type of proposed automatic signals or other warning devices planned at the crossing, including a cost estimate for each. If the proposed modifications include adding or modifying preemption, contact UTC for the additional worksheets.

Modifications to the existing warning devices include relocating the existing cantilevers and gates. They will be relocated approximately 100' eastward to accommodate the construction of two new tracks on a new alignment. The existing tracks will be removed. The existing cantilevers and gates are in good condition, appear to have been installed relatively recently, and are suitable for the proposed lane and median configuration.

The control equipment for the railroad warning devices will be upgraded to modern constant warning time units, replacing the existing bungalow and hardware. The new circuitry will allow for additional advanced pre-emption time. The interconnection between the grade crossing control equipment and the roadway signal traffic controller will be upgraded to a 6-wire supervisory configuration. The roadway authority can use 2 or 6 of these wires, depending upon their interconnection wiring preferences.

The approximate cost for crossing improvements at 108th Street SW is \$529,000.

Section 11 – Justification of Installation of Wayside Horn (if applicable)

1. Describe in detail why this crossing should have a wayside horn installed. Also include a description of where the wayside horns and indicator lights will be installed at the crossing.

With higher speed operations, wayside horns are being installed to help avoid creating noise for residents adjacent to the track. With higher speed trains, the train horn would begin sounding farther from the crossing, near residential areas and schools. The indicator lights will be installed on top of the cantilever masts or on their own mast, mounted high so that engineers can see them from a distance. The wayside horns will be installed in the northeast and southwest quadrants of the crossing.

Section 12 – Additional Information

Provide any additional information supporting the proposal, including information such as the public benefits that would be derived from modifying the crossing as proposed.

The two tracks will be shifted approximately 100' eastward from their current location.

New concrete crossing panels will be installed on both tracks, and the roadway repaved to match the elevation of the panels. The old tracks will be removed, and the medians made continuous in place of the old tracks.

The intersection of Halcyon Road SW and 108th Street SW is proposed to become a "right-in, right-out" intersection. The median, beginning at the grade crossing, will extend across the Halcyon Road SW intersection to enforce the right-in, right-out configuration.

The purpose of the right-in, right-out configuration is to prevent northbound traffic on Halcyon from turning left onto 108th. If this were to happen, and if the turning vehicle were not able to get into the flow of westbound traffic, that vehicle would potentially block eastbound traffic on 108th from clearing the tracks.

Section 13 – Waiver of Hearing by Respondent

Waiver of Hearing

The undersigned represents the Respondent in the petition to modify a highway-railroad grade crossing.

We have investigated the conditions at the crossing proposed for modification. We are satisfied the conditions are the same as described by the Petitioner in this docket. We agree the crossing be modified and consent to a decision by the commission without a hearing.

Dated at _____, Washington, on the _____ day of _____, 20 ____.

Printed name of Respondent

Signature of Respondent's Representative

Title

Phone number and e-mail address

Mailing address

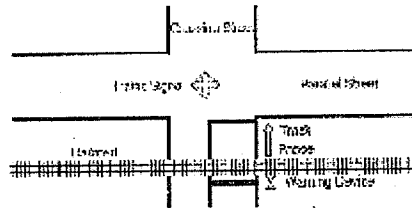
GUIDE FOR DETERMINING TIME REQUIREMENTS FOR TRAFFIC SIGNAL PREEMPTION AT HIGHWAY-RAIL GRADE CROSSINGS



GUIDE FOR DETERMINING TIME REQUIREMENTS FOR TRAFFIC SIGNAL PREEMPTION AT HIGHWAY-RAIL GRADE CROSSINGS

City Lakewood
 County Platte
 District _____

Date 6/3/2008
 Completed by Tony Wang
 District Approval _____



Parallel Street Name
Lakewood Ave SW
 Crossing Street Name
108th St SW

Railroad Sound Transit (owner)
 Crossing DOT# CRS 434 F

Railroad Contact John Mitchell
 Phone 206-398-5000

SECTION 1: RIGHT-OF-WAY TRANSFER TIME CALCULATION

Preempt verification and response time

| | | Remarks |
|--|-------------|----------------------------------|
| 1. Preempt delay time (seconds) | 1. <u>0</u> | |
| 2. Controller response time to preempt (seconds) | 2. <u>0</u> | Controller type: <u>Temp 390</u> |
| 3. Preempt verification and response time (seconds): add lines 1 and 2 | 3. <u>0</u> | |

Worst-case conflicting vehicle time

| | | Remarks |
|---|----------------|---------|
| 4. Worst case conflicting vehicle phase number | 4. <u>2</u> | |
| 5. Minimum green time during right-of-way transfer (seconds) | 5. <u>6.0</u> | |
| 6. Other green time during right of way transfer (seconds) | 6. <u>0</u> | |
| 7. Yellow change time (seconds) | 7. <u>3.5</u> | |
| 8. Red clearance time (seconds) | 8. <u>2</u> | |
| 9. Worst-case conflicting vehicle time (seconds): add lines 5 through 8 | 9. <u>11.5</u> | |

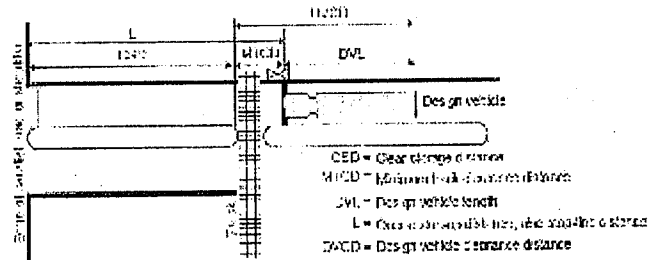
Worst-case conflicting pedestrian time

| | | Remarks |
|---|----------------|----------------|
| 10. Worst-case conflicting pedestrian phase number | 10. <u>2</u> | |
| 11. Minimum walk time during right-of-way transfer (seconds) | 11. <u>0</u> | <u>omitted</u> |
| 12. Pedestrian clearance time during right of way transfer (seconds) | 12. <u>0</u> | |
| 13. Vehicle yellow change time, if not included on line 7 (seconds) | 13. <u>3.5</u> | |
| 14. Vehicle red clearance time, if not included on line 12 (seconds) | 14. <u>2.0</u> | |
| 15. Worst-case conflicting pedestrian time (seconds): add lines 11 through 14 | 15. <u>5.5</u> | |

Worst-case conflicting vehicle or pedestrian time

| | | |
|--|-----------------|--|
| 16. Worst-case conflicting vehicle or pedestrian time (seconds): maximum of lines 9 and 15 | 16. <u>11.5</u> | |
| 17. Right-of-way transfer time (seconds): add lines 3 and 16 | 17. <u>11.5</u> | |

SECTION 2: QUEUE CLEARANCE TIME CALCULATION



| | | Remarks |
|---|----------|-------------------------------------|
| 18. Clear storage distance (CED, feet) | 18. 188 | |
| 19. Minimum truck clearance distance (MUCD, feet) | 19. 50 | |
| 20. Design vehicle length (DVL, feet) | 20. 67 | Design vehicle type: _____ |
| 21. Queue start-up distance, L (feet): add lines 18 and 19 | 21. 238 | |
| 22. Time required for design vehicle to start moving (seconds): calculate as $2\sqrt{L+23}$ | 22. 13.9 | Remarks |
| 23. Design vehicle clearance distance, DVC (feet): add lines 19 and 20 | 23. 117 | |
| 24. Time for design vehicle to accelerate through the DVC (seconds) | 24. 15 | Read from Figure 2 in instructions. |
| 25. Queue clearance time (seconds): add lines 22 and 24 | 25. 28.9 | |

SECTION 3: MAXIMUM PREEMPTION TIME CALCULATION

| | | Remarks |
|--|----------|---------|
| 26. Right-of-way transfer time (seconds): line 17 | 26. 11.5 | |
| 27. Queue clearance time (seconds): line 25 | 27. 28.9 | |
| 28. Desired minimum separation time (seconds) | 28. 4.0 | |
| 29. Maximum preemption time (seconds): add lines 26 through 28 | 29. 44.4 | |

SECTION 4: SUFFICIENT WARNING TIME CHECK

| | | Remarks |
|--|----------|---------------------------|
| 30. Required minimum time, MT (seconds): per regulations | 30. 200 | |
| 31. Clearance time, C1 (seconds): get from railroad | 31. 1.0 | Rail signal Design |
| 32. Minimum warning time, MWT (seconds): add lines 30 and 31 | 32. 210 | Includes buffer time (BT) |
| 33. Advance preemption time, APT, if provided (seconds): get from railroad | 33. 23.4 | |
| 34. Warning time provided by the railroad (seconds): add lines 32 and 33 | 34. 44.4 | |
| 35. Additional warning time required from railroad (seconds): subtract line 34 from line 29, round up to nearest full second, enter 0 if less than 0 | 35. 0 | |

If the additional warning time required (line 35) is greater than zero, additional warning time has to be requested from the railroad. Alternatively, the maximum preemption time (line 29) may be decreased after performing an engineering study to investigate the possibility of reducing the values on lines 1, 5, 6, 7, 8, 11, 12, 13 and 14.

Remarks: _____

ROADWAY CONSTRUCTION NOTES

1. CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER C.O.T. STD. PLAN NO. SU-03.
2. MODIFIED WSDOT CEMENT CONC. SIDEWALK FOR MEDIAN (PER DETAIL DRAWING RODTET113A).
3. CEMENT CONCRETE SIDEWALK (PER C.O.T. STD. PLAN SU-04).
4. CONCRETE CROSSING PANELS WITH ELASTOMERIC FLANGE FILLER. SEE TRACK PLAN AND PROFILE DRAWINGS.
5. CROSSING SIGNAL EQUIPMENT. SEE GRADE CROSSING SIGNAL PLANS.
6. CEMENT CONCRETE TRAFFIC BARRIER CURB PER CITY OF LAKEWOOD STD. PLAN S-2F.
7. CEMENT CONCRETE SIDEWALK (PER CITY OF LAKEWOOD STD. PLAN S-2A).
8. (NOT USED)
9. CEMENT CONCRETE DRIVEWAY ENTRANCE TYPE 2 PER C.O.T. STD. PLAN SU-08 MODIFIED WITH CURB AT BACK OF S/W. (SEE TYPICAL SECTIONS).
10. CRUSHED SURFACING BASE COURSE (ACCESS PAD TO RAILROAD SIGNAL EQUIPMENT); 6" CSBC COMPACTED DEPTH OVER GRAVEL BORROW SUBGRADE.
11. (NOT USED)
12. (NOT USED)
13. TYPE C PRECAST TRAFFIC CURB (PER WSDOT STD. PLAN F-2).
14. CEMENT CONCRETE TRAFFIC CURB PER C.O.T. STD. PLAN NO. SU-03.
15. CHAINLINK FENCE TYPE 3 (PER WSDOT STD. PLAN L-20.10-00). (NOT USED)
16. BEAM GUARDRAIL TYPE 1 PER WSDOT STD. PLAN NO. C-1 (NOT USED)
17. (NOT USED)
18. (NOT USED)
19. (NOT USED)
20. CEMENT CONC. DRIVEWAY ENTRANCE-MODIFIED (PER DETAIL DRAWING RODTET114A).
21. STATION/OFFSET LOCATION FOR DETECTABLE WARNING PATTERN. SEE DRAWINGS RODTET110A AND RODTET111A.
22. CEMENT CONCRETE TRAFFIC CURB AND GUTTER PER CITY OF LAKEWOOD STD. PLAN S-2F.
23. ADJUST UTILITY TO GRADE.
24. TYPICAL CURB AND GUTTER/SIDEWALK TRANSITION AT RAIL CROSSING (PER DETAIL DRAWING RODTET110A).
25. (NOT USED)
26. (NOT USED)
27. CEMENT CONC. TRAFFIC CURB AND GUTTER PER WSDOT STD. PLAN F-10.12-00. (NOT USED)
28. CEMENT CONC. SIDEWALK (PER WSDOT STD. PLAN F-30.10-00). (NOT USED)
29. (NOT USED)
30. (NOT USED)
31. CEMENT CONC. SIDEWALK (PER CITY OF LAKEWOOD STD. PLAN S-2B).
32. (NOT USED)
33. (NOT USED)
34. (NOT USED)
35. TYPICAL CURB AND GUTTER TRANSITION AT RAIL CROSSING (PER DETAIL DRAWING RODTET110A). (NOT USED)
36. (NOT USED)
37. (NOT USED)
38. TYPICAL CURB AND GUTTER/PLANTER/SIDEWALK TRANSITION AT RAIL CROSSING (PER DETAIL DRAWING RODTET111A).
39. (NOT USED)
40. TYPICAL DEPRESSED SIDEWALK AT RAIL CROSSING (PER DETAIL DRAWING RODTET111A). (NOT USED)
41. CONCRETE PAD FOR BUS STOP (PER DETAIL DRAWING RODTET112A).

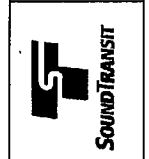
ROADWAY CONSTRUCTION NOTES (CONT.)

42. DUAL FACED CEMENT CONC. TRAFFIC CURB (PER WSDOT STD. PLAN F-10.12-00). (NOT USED)
43. (NOT USED)
44. (NOT USED)
45. (NOT USED)
46. HMA CURB (PER DETAIL DRAWING RODTET113A).
47. (NOT USED)
48. SIDEWALK RAMP TYPE 2 PER CITY OF LAKEWOOD STD. PLAN S-3B.
49. (NOT USED)
50. HMA SIDEWALK RAMP (PER DETAIL DRAWING RODTET113A).
51. CURB AND GUTTER TRANSITION TO HMA CURB (PER DETAIL DRAWING RODTET113A).
52. CEMENT CONCRETE SIDEWALK RAMP TYPE 2, MODIFIED (PER DETAIL DRAWING RODTET110A). (NOT USED)
53. (NOT USED)
54. MOUNTABLE CEMENT CONCRETE TRAFFIC CURB AND GUTTER (PER DETAIL DRAWING RODTET114A).
55. (NOT USED)
56. CEMENT CONCRETE DRIVEWAY ENTRANCE TYPE 1 (PER C.O.T. STD. PLAN NO. SU-07).
57. (NOT USED)
58. CEMENT CONC. SIDEWALK RAMP TYPE 3B PER WSDOT STD. PLAN F-40.15-00. (NOT USED)
59. STORMWATER CURB BREAK (PER DETAIL DRAWING RODTET112A). (NOT USED)
60. (NOT USED)
61. CEMENT CONC. TRAFFIC CURB (PER WSDOT STD. PLAN F-10.12-00). (NOT USED)
62. PRECAST DUAL FACED SLOPED MOUNTABLE CURB (PER WSDOT STD. PLAN F-10.64-01). (NOT USED)
63. CEMENT CONC. SIDEWALK RAMP TYPE 5 PER WSDOT STD. PLAN F-42.10-00. (NOT USED)
64. BEAM GUARDRAIL ANCHOR TYPE 1 (PER WSDOT STD. PLAN C-6 WITH END SECTION DESIGN C PER WSDOT STD. PLAN C-7). (NOT USED)

GENERAL NOTES - ROADWAY CONSTRUCTION

1. SEE UTILITY RELOCATION AND PROTECTION PLANS FOR STORM DRAINAGE, MISC. CONDUIT AND GASING INSTALLATION.
2. SEE SHEETS ROAD121A-ROAD125A FOR ROADWAY MEDIAN DETAILS.
3. SEE SHEETS ROAD110A-ROAD128A FOR PAVEMENT SECTIONS.
4. CURB AND GUTTER DEFINED BY FACE OF CURB UNLESS OTHERWISE NOTED. ALL ELEVATIONS ARE PROVIDED AT TOP OF CURB UNLESS OTHERWISE NOTED AND DO NOT REFLECT CURB CUTS OR SIDEWALK RAMPS.
5. ALL CURB RETURN ELEVATIONS ARE TO TOP OF CURB UNLESS OTHERWISE NOTED. AT CURB CUT RAMPS, CURB RETURN ELEVATIONS ARE INDICATED AT A POINT 6" ABOVE GUTTER FLANGE UNLESS OTHERWISE NOTED.
6. ALL UNITS ARE IN FEET UNLESS OTHERWISE SPECIFIED.
7. DRIVEWAYS ARE STATIONED AT CENTERLINE OF DRIVEWAY.

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| PLOTTED BY | colfax | 10 WASH | |
| DESIGNED BY | RDH | JOB NUMBER | |
| CHECKED BY | XXX | CONTRACT NO. | |
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| REGIONAL ADM. | | REVISION | |



POINT DEFENCE BYPASS PROJECT
100% PS&E SUBMITTAL
ROADWAY CONSTRUCTION NOTES

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ROADWAY CONSTRUCTION NOTES

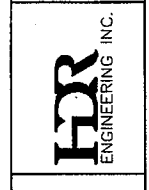
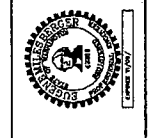
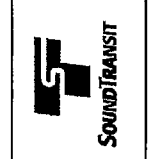
ROADWAY CHANNELIZATION NOTES

14. PAINTED TWO WAY LEFT TURN STRIP WITH RAISED PAVEMENT MARKERS PER C.O.T. CHANNELIZATION DETAILS, RAISED PAVEMENT MARKERS AND PAINT STRIPING STD. PLAN.
15. PAINTED 4" LANE STRIPE WITH RAISED PAVEMENT MARKERS PER C.O.T. CHANNELIZATION DETAILS, RAISED PAVEMENT MARKERS AND PAVEMENT STRIPING STD. PLAN.
21. PLASTIC PAVEMENT "ONLY" PER C.O.T. PLASTIC PAVEMENT "ONLY" STD. PLAN.
22. THERMOPLASTIC TRAFFIC ARROW PER C.O.T. TYPICAL THERMOPLASTIC TRAFFIC ARROW STD. PLAN.
40. PLASTIC TYPE D STOP BAR PER WSDOT STD. PLAN M-11.10-01.
41. PLASTIC TYPE D RAILROAD CROSSING SYMBOL PER WSDOT STD. PLAN M-11.10-01, WITH EXCEPTIONS TO STANDARD LAYOUT DIMENSIONS AS NOTED IN PLAN VIEW.
42. PLASTIC TYPE D EDGE LINE YELLOW PER WSDOT STD. SPECIFICATIONS.
43. PLASTIC TYPE D EDGE LINE WHITE PER WSDOT STD. SPECIFICATIONS. (NOT USED)
44. CITY OF LAKEWOOD DURABLE MARKING TRAFFIC ARROW TYPE 2SR PER WSDOT STD. PLAN M-24.40-01.
45. PLASTIC TYPE D CROSSWALK LINE PER WSDOT STD. PLAN M-15.10-01. (NOT USED)
46. PLASTIC TYPE D WIDE LINE PER WSDOT STD. SPECIFICATIONS. (NOT USED)
47. PLASTIC TYPE D DOUBLE YELLOW CENTER LINE PER WSDOT STD. SPECIFICATIONS. (NOT USED)
48. PLASTIC TYPE D LANE LINE PER WSDOT STD. SPECIFICATIONS. (NOT USED)
49. CITY OF LAKEWOOD DURABLE MARKING RAILROAD CROSSING SYMBOL PER WSDOT STD. PLAN M-11.10-01, WITH EXCEPTIONS TO STANDARD LAYOUT DIMENSIONS AS NOTED IN PLAN VIEW.
50. CITY OF LAKEWOOD DURABLE MARKING STOP BAR PER WSDOT STD. PLAN M-11.10-01.
51. CITY OF LAKEWOOD DURABLE MARKING TRAFFIC ARROW TYPE 2SL PER WSDOT STD. PLAN M-24.40-01.
52. CITY OF LAKEWOOD DURABLE MARKING TRAFFIC LETTERS "ONLY", DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
53. CITY OF LAKEWOOD DURABLE MARKING EDGE LINE YELLOW, DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
54. CITY OF LAKEWOOD DURABLE MARKING 24" STOP BAR PER CITY OF LAKEWOOD STD. PLAN CH-1.
55. PLASTIC TYPE D TRAFFIC ARROW TYPE 2SL PER WSDOT STD. PLAN M-24.40-01. (NOT USED)
56. PLASTIC TYPE D TRAFFIC LETTERS "ONLY" PER WSDOT STD. SPECIFICATIONS. (NOT USED)
57. CITY OF LAKEWOOD DURABLE MARKING BICYCLE LANE SYMBOL PER WSDOT STD. PLAN M-9.50-01.
58. CITY OF LAKEWOOD DURABLE MARKING EDGE LINE WHITE, DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
59. CITY OF LAKEWOOD DURABLE MARKING WIDE LINE, DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
60. CITY OF LAKEWOOD DURABLE MARKING DOUBLE YELLOW CENTER LINE, DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
61. TYPE 1 AND 2 RPM DOUBLE YELLOW CENTER LINE PER WSDOT STD. PLAN M-20.50-01. (NOT USED)
62. RAISED PAVEMENT MARKER TYPE 1Y DOUBLE YELLOW CENTER LINE PER WSDOT STD. PLAN M-20.50-01. (NOT USED)
63. RAISED PAVEMENT MARKER TYPE 1W AND LANE LINE PER DETAIL SHEET R0DETT112A.
64. RAISED PAVEMENT MARKER TYPE 1Y AND TWO WAY LEFT TURN LINE PER DETAIL SHEET R0DETT112A.
65. PLASTIC TYPE D TRAFFIC ARROW TYPE 6SL, DIMENSIONS PER WSDOT STD. PLAN M-24.40.01, LAYOUT PER LANE REDUCTION DETAIL ON SHEET R0DETT118A. (NOT USED)
66. PLASTIC TYPE D TRAFFIC ARROW TYPE 2SR PER WSDOT STD. PLAN M-24.40-01. (NOT USED)
67. CITY OF LAKEWOOD DURABLE MARKING CROSSWALK PER CITY OF LAKEWOOD STD. PLAN CH-1.
68. CITY OF LAKEWOOD DURABLE MARKING LANE LINE PER SPECIFICATION SECTION 01900, REVISIONS TO WSDOT STD. SPECIFICATION 8-22 AND 3-04, DIMENSIONS PER WSDOT STD. SPECIFICATIONS.
69. PLASTIC TYPE D STOP LINE PER WSDOT STD. PLAN M-15.10-01. (NOT USED)
70. PAINT TOP AND EXPOSED SIDES OF CURB YELLOW, WITH GLASS BEADS, PER SPECIFICATION SECTION 01900.

GENERAL NOTES - ROADWAY CHANNELIZATION

1. ALL UNITS ARE IN FEET UNLESS OTHERWISE SPECIFIED.

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|---------------|----------------|----------|------|----|
| FILE NAME | PD_R0DCHNA.dwg | REVISION | DATE | BY |
| TIME | 10:23:00am | | | |
| DATE | May 09, 2018 | | | |
| PLOTTED BY | chbrook | | | |
| DESIGNED BY | ROD | | | |
| ENTERED BY | XXX | | | |
| CHECKED BY | XXX | | | |
| PLOT ENGR. | | | | |
| REGIONAL ADM. | | | | |



POINT DEFIANCE BYPASS PROJECT
100% PS&E SUBMITTAL
ROADWAY CHANNELIZATION NOTES

| | | |
|--------|--------|---|
| RDCHNA | SHEET | X |
| | OF | X |
| | SHEETS | |

